Dell Vostro 15 – 3549
Owner's Manual

Regulatory Model: P45F
Regulatory Type: P45F001

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

Copyright © 2015 Dell Inc. All rights reserved. This product is protected by U.S. and international copyright and intellectual property laws. Dell™ and the Dell logo are trademarks of Dell Inc. in the United States and/or other jurisdictions. All other marks and names mentioned herein may be trademarks of their respective companies.

2014 - 12

Rev. A00

Contents

1 Working on Your Computer....5

Connecting the Power Adapter....5
System Overview....6
Front and Back View....6
Before Working Inside Your Computer....7
Recommended Tools....8
Turning Off Your Computer....8
After Working Inside Your Computer....9

2 Removing and Installing Components....10

Removing the Battery....10
Installing the Battery....11
Removing the Optical Drive....11
Installing the Optical Drive....11
Removing the Access Panel....11
Installing the Access Panel....12
Removing the Hard Drive....12
Installing the Hard Drive....13
Removing the Memory Module....13
Installing the Memory Module....14
Removing the WLAN Card....14
Installing the WLAN Card....14
Removing the Keyboard....15
Installing the Keyboard....16
Removing the Palmrest Assembly....17
Installing the Palmrest Assembly....19
Removing the Battery Connector....19
Installing the Battery Connector....20
Removing the Coin-Cell Battery....20
Installing the Coin-cell battery....21
Removing the Optical Drive Connector....21
Installing the Optical Drive Connector....22
Removing the Input/Output (I/0) Board....22
Installing the Input/Output (I/O) Board....23
Removing the Speakers....24
Installing the Speakers....25
Removing the System Board....25
Installing the System Board....26

Removing the Display Assembly....27
Installing the Display Assembly....29
Removing the Camera....30
Installing the Camera....31
Removing the Heatsink....31
Installing the Heatsink Assembly....32
Removing the Power Connector....32
Installing the Power Connector....33

3 System Setup....34
Boot Sequence....34
Navigation Keys....34
System Setup Options....35
Updating the BIOS....39
System and Setup Password....39
Assigning a System Password and Setup Password....40
Deleting or Changing an Existing System and/or Setup Password....40

4 Diagnostics....41
Enhanced Pre-Boot System Assessment (ePSA) Diagnostics....41
Device Status Lights....42
Power Status Lights....42

5 Specifications....43
Specifications....43

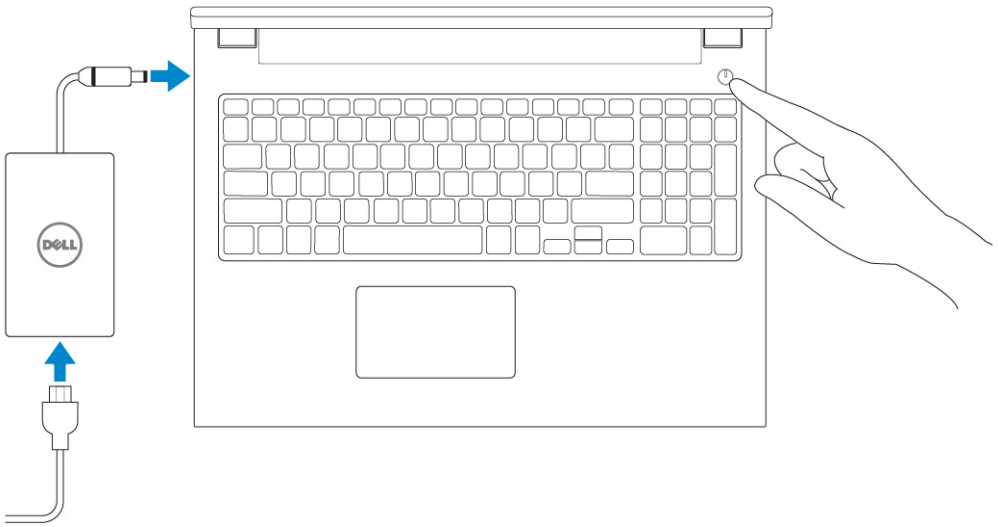
6 Contacting Dell....48
Contacting Dell....48

1

Working on Your Computer

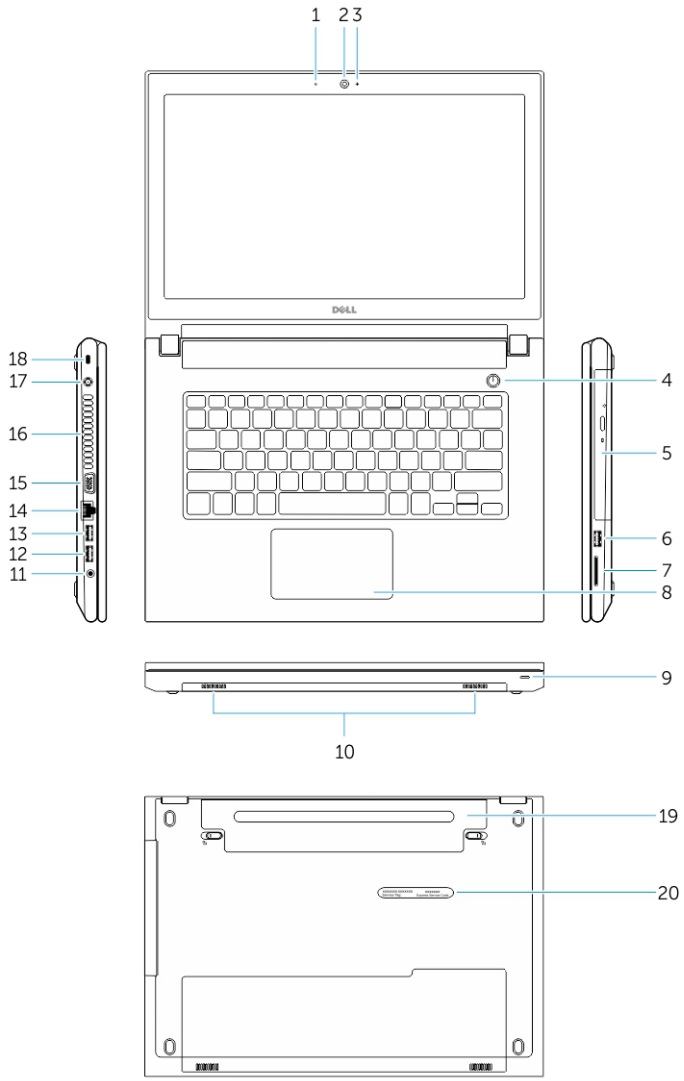
Connecting the Power Adapter

Connect the power adapter and turn on your computer.



System Overview

Front and Back View



1. microphone
2. camera
3. camera-status light
4. power button
5. optical drive
6. USB 2.0 connector
7. memory-card reader
8. touchpad
9. power and battery-status light
10. speakers
11. audio connector
12. USB 3.0 connector
13. USB 2.0 connector
14. network connector

15. VGA connector
16. air vents
17. power connector
18. security-cable slot
19. battery
20. service-tag label

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.

WARNING: Disconnect all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting to the power source.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see Turning off Your Computer).
3. If the computer is connected to a docking device (docked), undock it.

   CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.
4. Disconnect all network cables from the computer.

5. Disconnect your computer and all attached devices from their electrical outlets.
6. Close the display and turn the computer upside-down on a flat work surface.

   NOTE: To avoid damaging the system board, you must remove the main battery before you service the computer.
7. Remove the main battery.
8. Turn the computer top-side up.
9. Open the display.
10. Press the power button to ground the system board.

    CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the display.

    CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.
11. Remove any installed ExpressCards or Smart Cards from the appropriate slots.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- #0 Phillips screwdriver
- #1 Phillips screwdriver
- Small plastic scribe

Turning Off Your Computer

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system:
   - In Windows 8.1:
     - Using a touch-enabled device:
       a. Swipe in from the right edge of the screen, opening the Charms menu and select **Settings**.
       b. Select the ⏻ and then select **Shut down**.

       Or

       * On the Home screen, touch the ⏻ and then select **Shut down**.
     - Using a mouse:
       a. Point to upper-right corner of the screen and click **Settings**.

b. Click the and select **Shut down**.

Or

* On the Home screen, click and then select **Shut down**.

- In Windows 7:

1. Click **Start**.
2. Click **Shut Down.**

or

1. Click **Start**.
2. Click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down** .

2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 6 seconds to turn them off.

After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

1. Connect any external devices, such as a port replicator or media base, and replace any cards, such as an ExpressCard.
2. Connect any telephone or network cables to your computer.

   CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.
3. Replace the battery.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

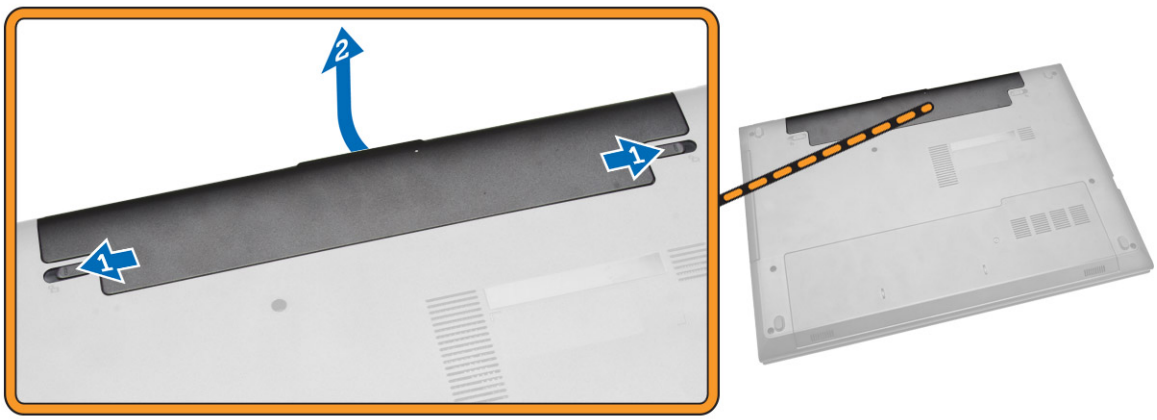
2

Removing and Installing Components

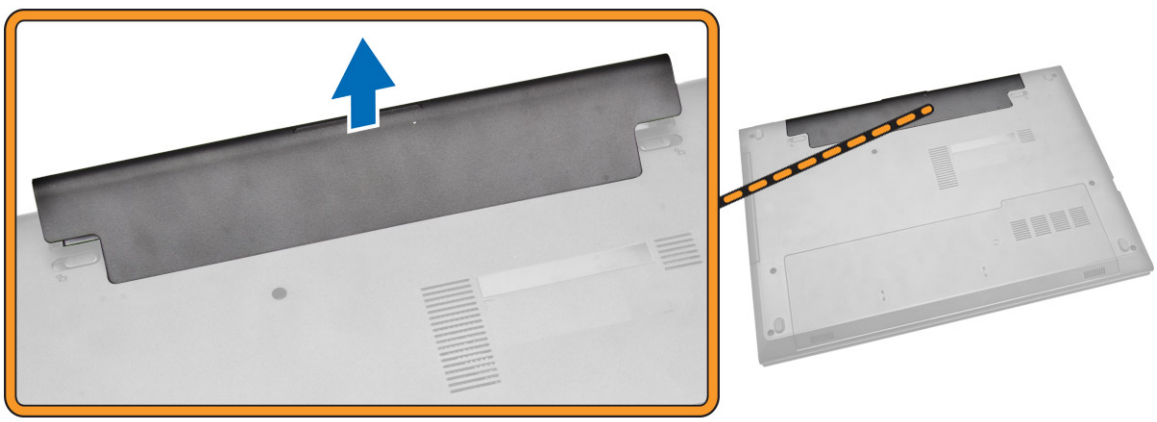
This section provides detailed information on how to remove or install the components from your computer.

Removing the Battery

1. Follow the procedures in Before Working Inside Your Computer.
2. Perform the following steps as shown in the illustration:
   a. Slide the latches outward [1].
   b. Release the battery [2].



3. Lift the battery to remove it from the computer.

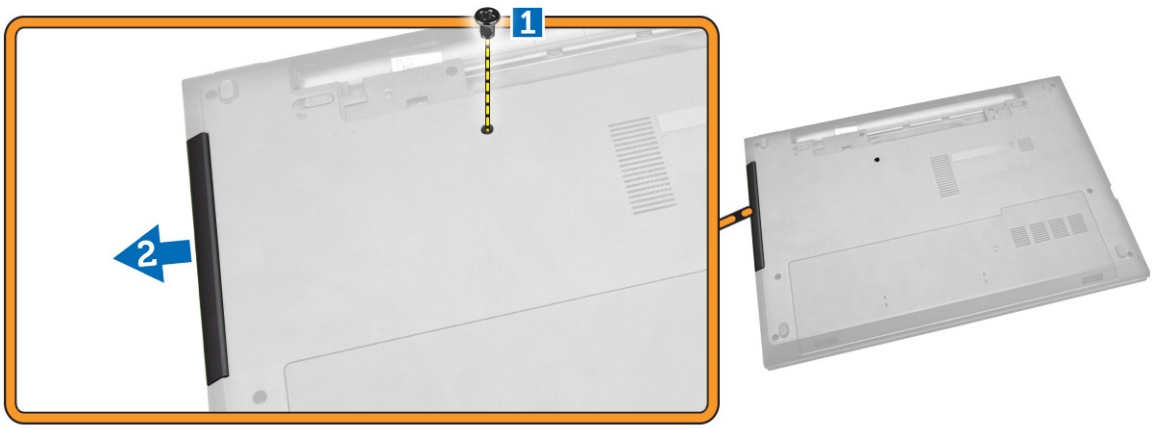


Installing the Battery

1. Insert the battery into the battery slot and press to lock in place.
2. Follow the procedures in After Working Inside Your computer.

Removing the Optical Drive

1. Follow the procedures in Before Working Inside Your Computer
2. Remove the Battery.
3. Perform the following steps as shown in the illustration:
   a. Remove the screw that secures the optical drive [1].
   b. Slide the optical drive out of the computer [2].

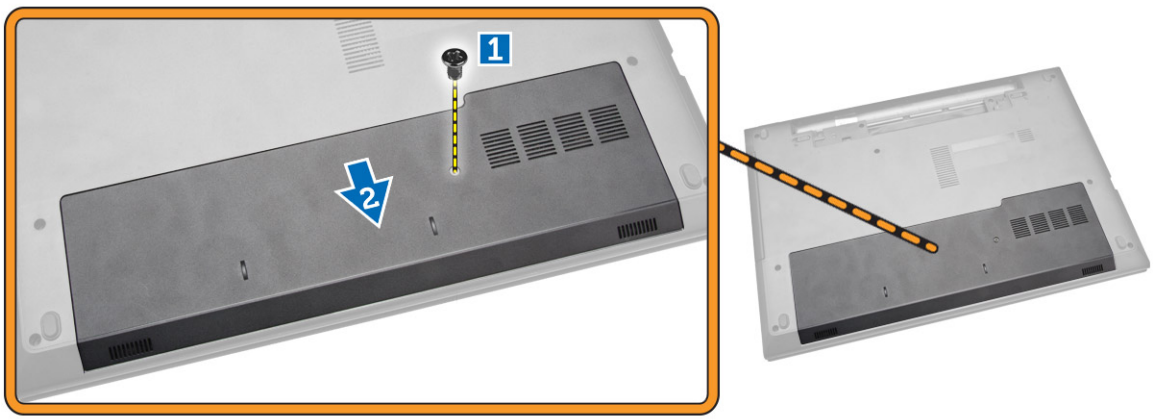


Installing the Optical Drive

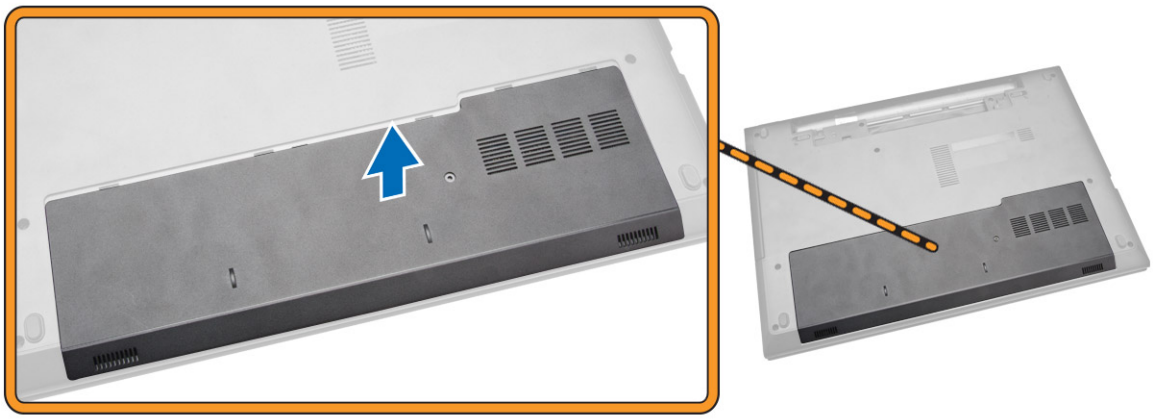
1. Slide the optical drive into the computer.
2. Tighten the screw to secure the optical drive.
3. Install the battery.
4. Follow the procedures in After Working Inside Your computer.

Removing the Access Panel

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the Battery.
3. Perform the following steps as shown in the illustration:
   a. Loosen the screw that secures access panel to computer [1].
   b. Slide the access panel from the computer [2].



4. Lift the access panel off the computer.



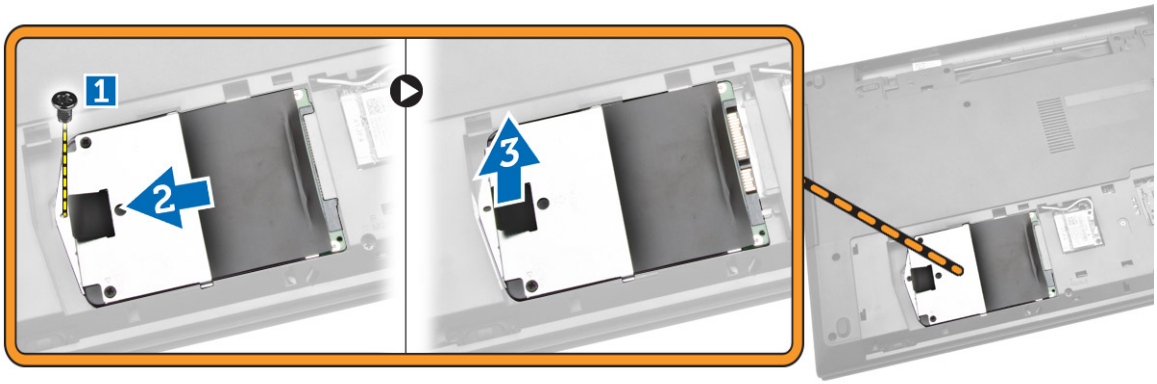
Installing the Access Panel

1. Insert the access panel into the chassis.
2. Tighten the screw to secure the access panel to the chassis.
3. Install battery.
4. Follow the procedures in After Working Inside Your computer.

Removing the Hard Drive

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the Battery.
3. Remove the access panel.
4. Perform the following steps as shown in the illustration:
   a. Remove the screw that secures the hard drive to the computer [1].
   b. Slide the hard drive out from the computer [2].

c. Lift the hard drive upwards from the computer [3].

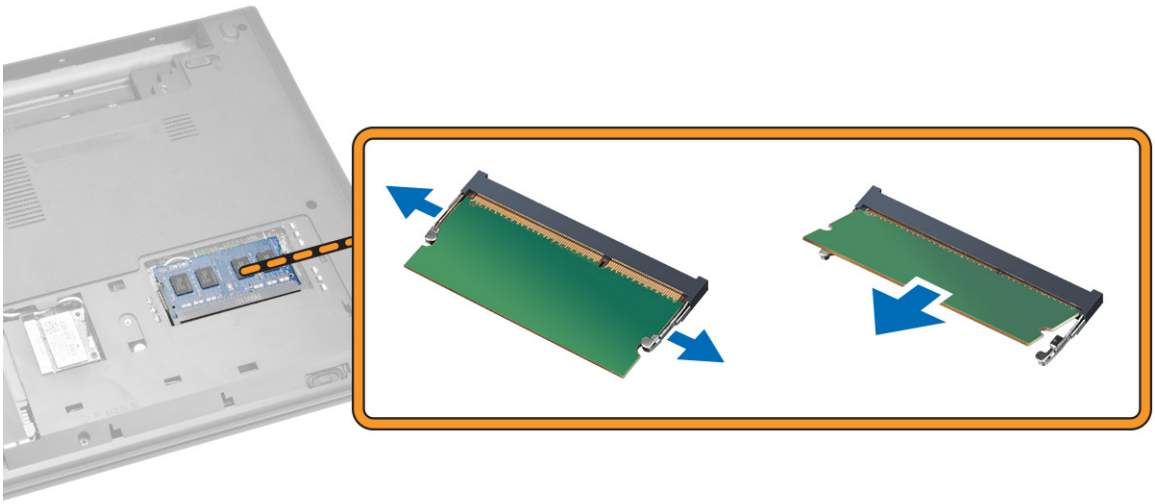


Installing the Hard Drive

1. Slide the hard drive into the connector.
2. Tighten the screw to secure it to the chassis.
3. Install:
   a. access panel
   b. battery
4. Follow the procedures in After Working Inside Your computer.

Removing the Memory Module

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. access panel
3. Pry the securing clips away from the memory module until it pops up.
4. Remove the memory module from its socket on the system board.

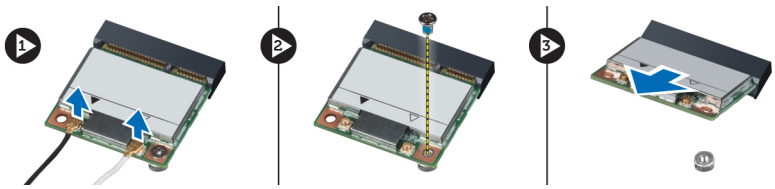


Installing the Memory Module

1. Insert the memory module into the socket and press to lock the securing clips.
2. Install the access panel.
3. Install the battery.
4. Follow the procedures in After Working Inside Your computer.

Removing the WLAN Card

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the Access Panel.
3. Perform the following steps to remove the WLAN card:
   a. Disconnect the WLAN cables from its connectors [1].
   b. Remove the screw that secures the WLAN card to the computer [2].
   c. Pull the WLAN card to remove it from the computer [3].



Installing the WLAN Card

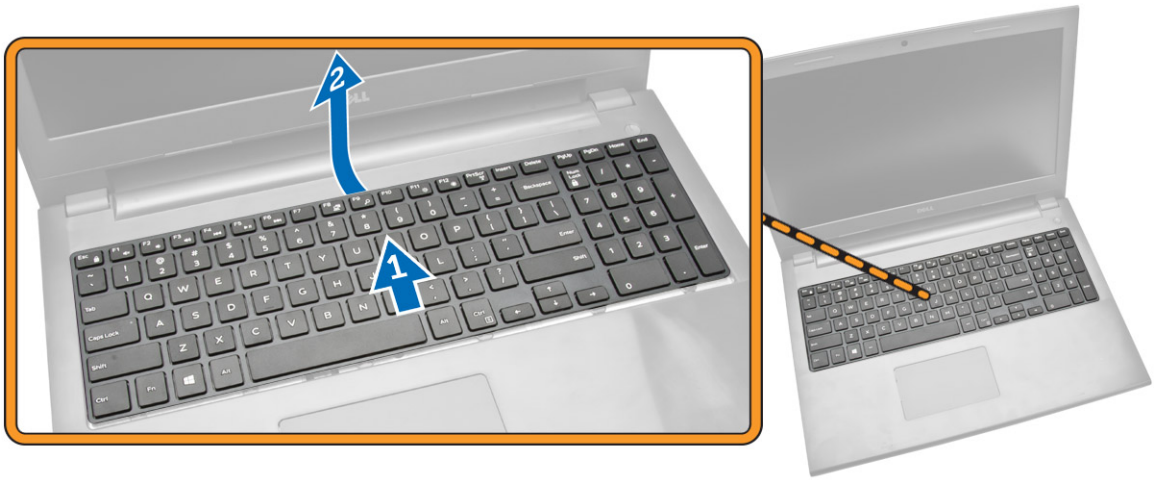
1. Place the WLAN card into its slot on the computer.
2. Connect the WLAN cables to its connectors on the WLAN card.
3. Tighten the screw that secures the WLAN card to the computer.
4. Install the Access panel.

5. Follow the procedures in After Working Inside Your computer.

Removing the Keyboard

1. Follow the procedures in Before Working Inside Your Computer.
2. Release the keyboard by pressing the tabs using a scribe.

3. Perform the following steps as shown in the illustration:
   a. Slide the keyboard from the computer [1].
   b. Flip the keyboard to access the cable below [2].



4. Perform the following steps as shown in the illustration:
   a. Lift the locking tab and disconnect the cable from the locking tab [1].
   b. Disconnect the keyboard cable from the computer [2].

Installing the Keyboard

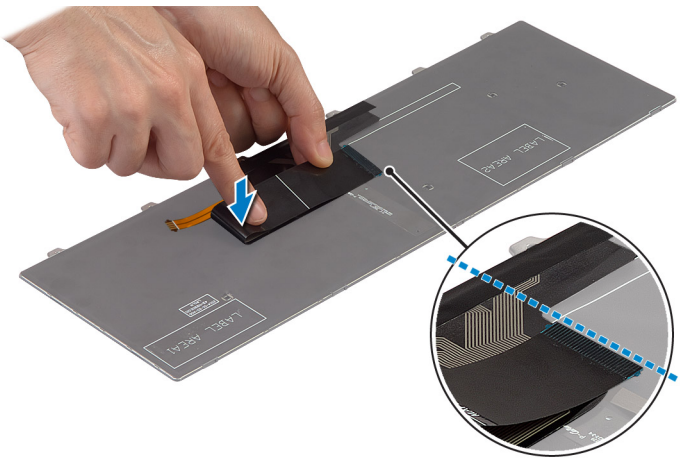
1. Connect the keyboard cable to the connector on the system board.
2. Flip the keyboard after connecting the keyboard cable.
3. Slide the keyboard into the retaining slots.
4. Press the top edge to lock the keyboard in place.
5. Install the battery.
6. Follow the procedures in After Working Inside Your computer.

If a new keyboard is to be replaced, perform the following steps for keyboard replacement.

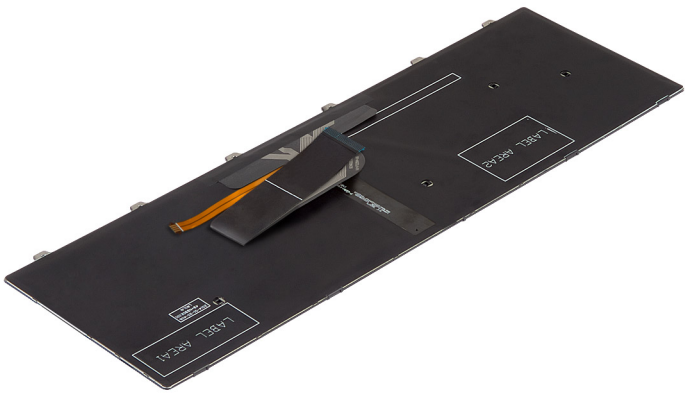
NOTE:
When a new keyboard is shipped out for replacement the **keyboard cables will not be folded**. Follow the instructions below in order **to fold the cables correctly**:

1. Place the keyboard on a flat and clean surface.
2. Lift the keyboard cable and fold the keyboard-backlight cable at the fold line.

3. Using the alignment line, fold the keyboard cable.

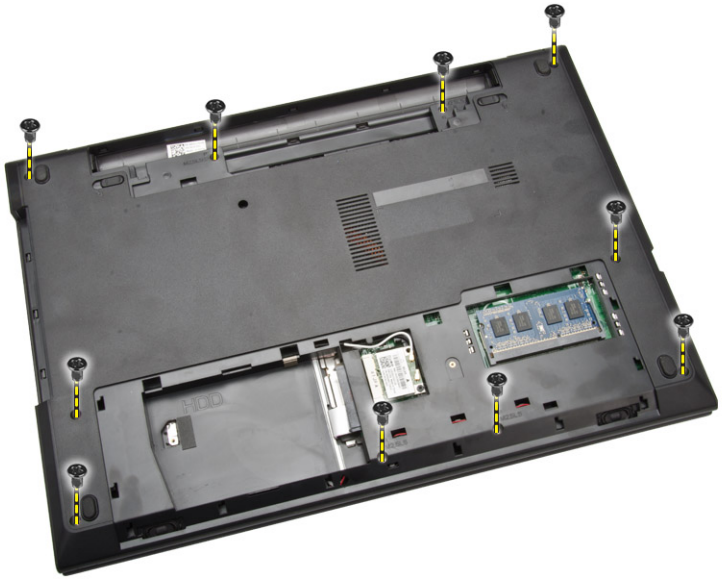


4. Once done the folds should look as shown below.

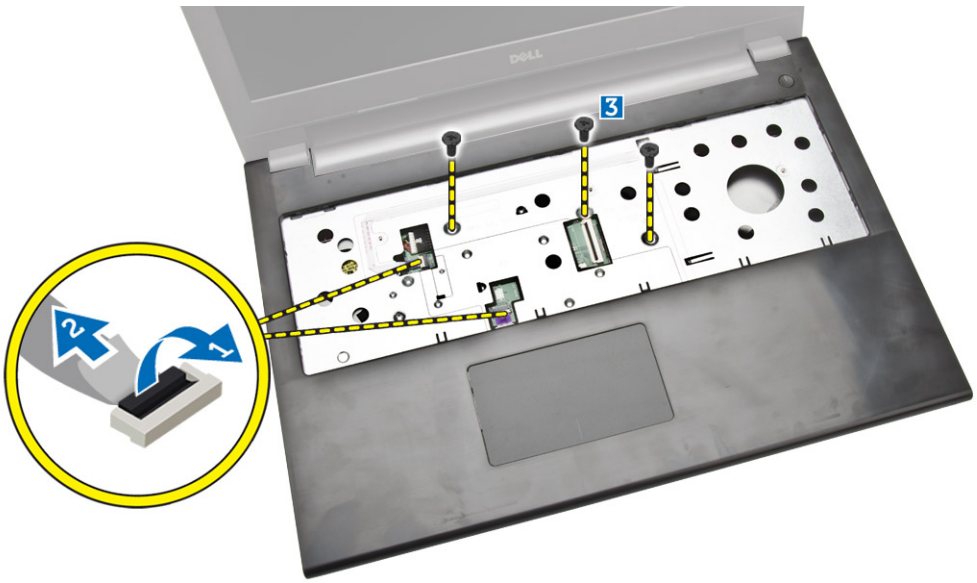


Removing the Palmrest Assembly

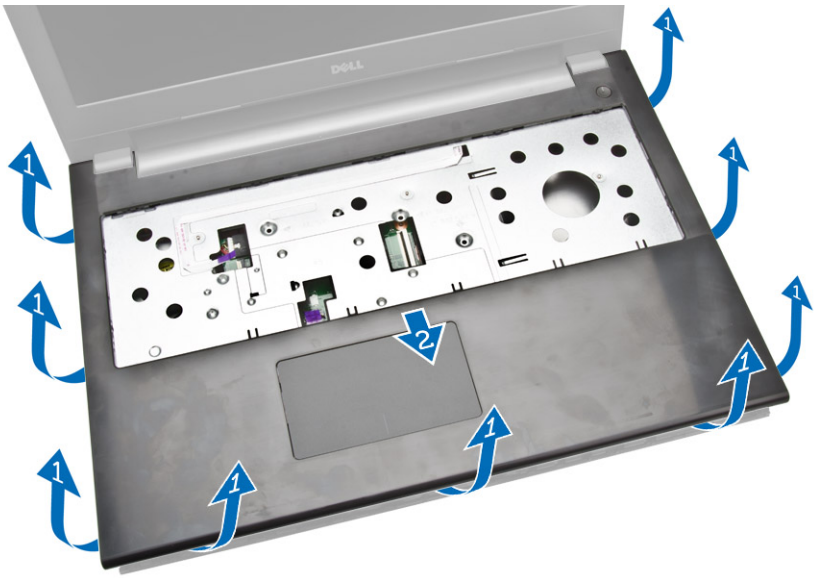
1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the Battery.
3. Remove the access panel.
4. Remove the keyboard.
5. Flip the computer and remove the screws at the base of the computer. Then, release the tabs securing the base cover.



6. Perform the following steps as shown in the illustration:
   a. Flip the computer and disconnect the touchpad and power cables by pressing locking tab [1].
   b. Lift the touchpad and power cables from locking tab [2].
   c. Remove the screws from inside the keyboard cavity [3].



7. Perform the following steps as shown in the illustration:
   a. Gently pry up the palmrest from the computer [1].
   b. Slide the palmrest from the computer [2].



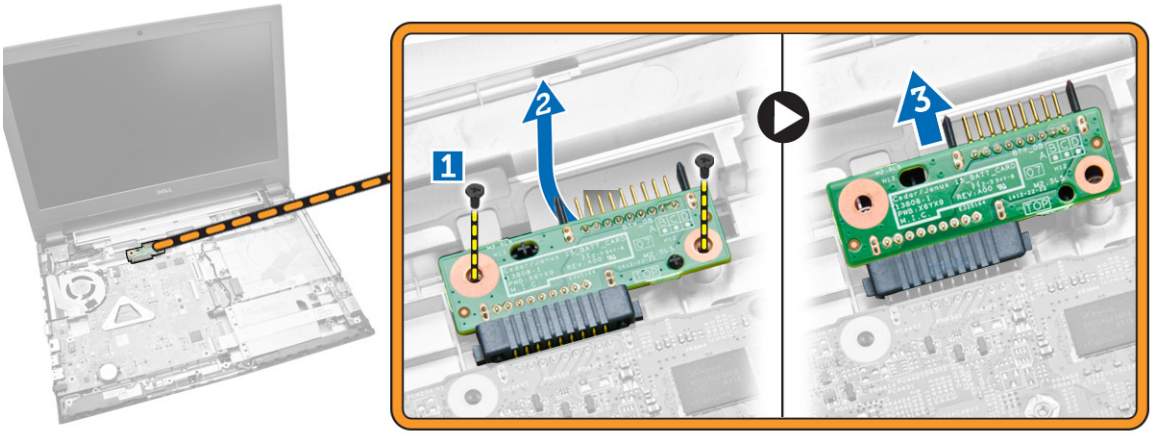
Installing the Palmrest Assembly

1. Place the palmrest on the chassis and press the notches until it clicks in place.
2. Connect the touchpad and power cables to the system board.
3. Tighten the screws to secure it to the system board.
4. Turn the computer over and tighten the screws at the base of the computer.
5. Install:
   a. keyboard
   b. memory module
   c. hard drive
   d. WLAN card
   e. access panel
   f. optical disk-drive
   g. battery
6. Follow the procedures in After Working Inside Your computer.

Removing the Battery Connector

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. Battery
   b. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. palmrest assembly
3. Perform the following steps as shown in the illustration:

a. Remove the screws that secure the battery connector to the computer [1].
b. Lift the battery connector partially to a 45-degree angle [2].
c. Remove the battery connector from the computer [3].

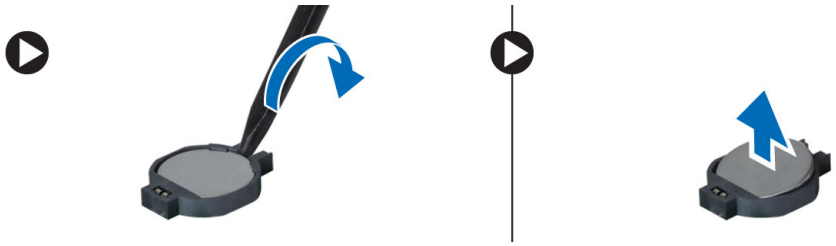


Installing the Battery Connector

1. Tighten the screws to secure the battery connector to the computer.
2. Install the:
   a. palmrest assembly
   b. keyboard
   c. memory module
   d. hard drive
   e. WLAN card
   f. access panel
   g. optical disk-drive
   h. battery
3. Follow the procedures in After Working Inside Your computer.

Removing the Coin-Cell Battery

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. Battery
   b. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. palmrest assembly
3. Push the coin-cell release latch using a scribe and then pull the coin-cell battery to remove it from the computer.

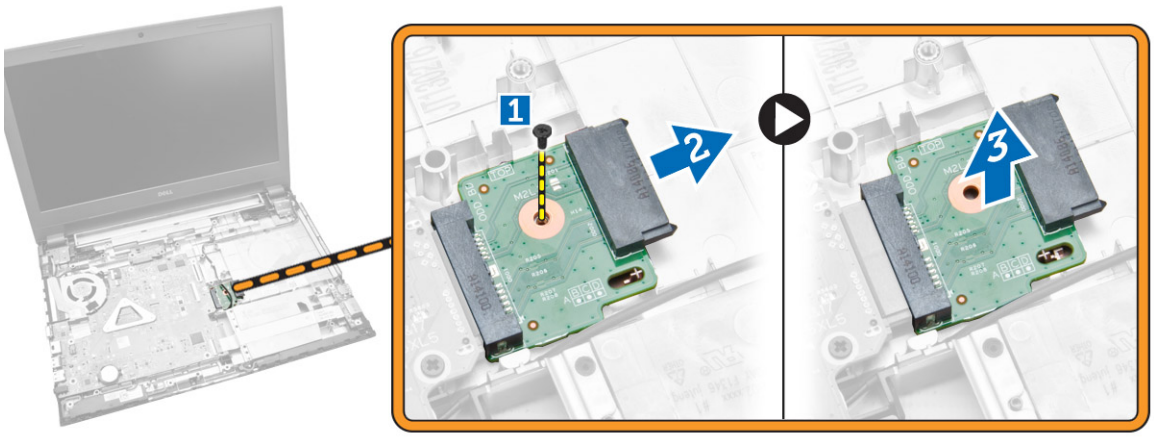


Installing the Coin-cell battery

1. Insert the coin-cell battery and press to lock.
2. Install:
   a. palmrest assembly
   b. keyboard
   c. memory module
   d. hard drive
   e. WLAN card
   f. access panel
   g. optical disk-drive
   h. battery
3. Follow the procedures in After Working Inside Your computer.

Removing the Optical Drive Connector

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. battery
   b. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. palmrest assembly
3. Remove the screws that secure the optical drive connector to the computer and remove it from the computer.

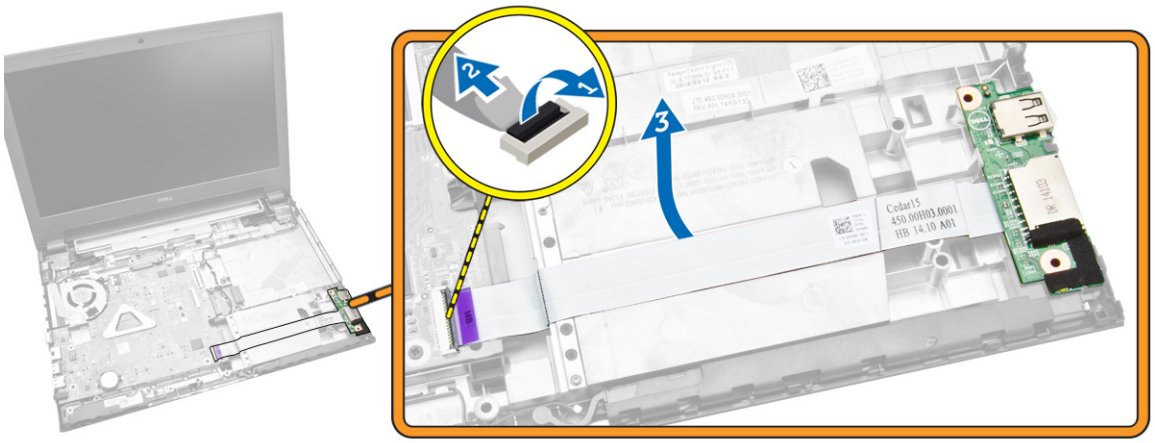


Installing the Optical Drive Connector

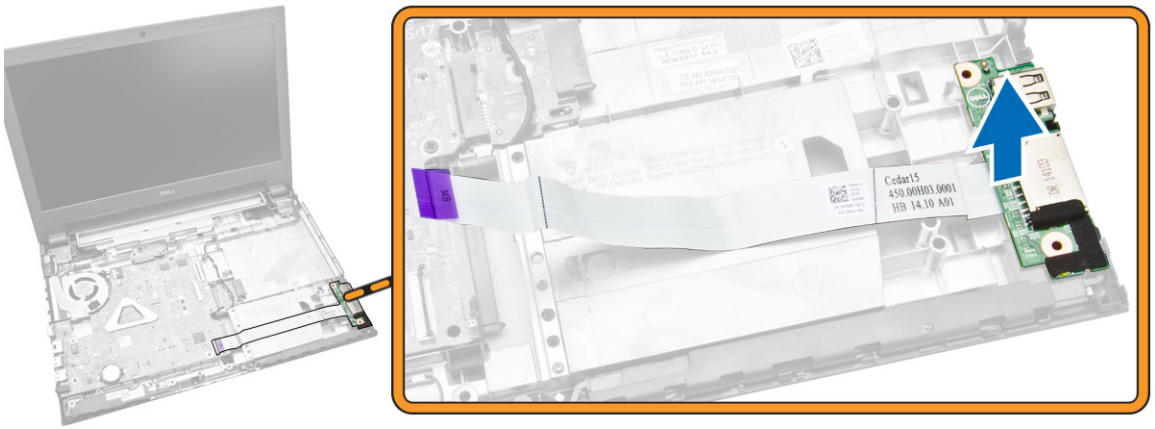
1. Tighten the screws to secure the optical drive connector to the computer.
2. Install the:
   a. palmrest assembly
   b. keyboard
   c. memory module
   d. hard drive
   e. WLAN card
   f. access panel
   g. optical disk-drive
   h. battery
3. Follow the procedures in After Working Inside Your computer.

Removing the Input/Output (I/0) Board

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. Battery
   b. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. palmrest assembly
3. Perform the following steps as shown in the illustration:
   a. Lift the locking tab [1].
   b. Disconnect the I/O board cable from the computer [2].
   c. Lift the I/O board partially to a 45-degree angle [3].



4. Lift the I/O board from the computer.

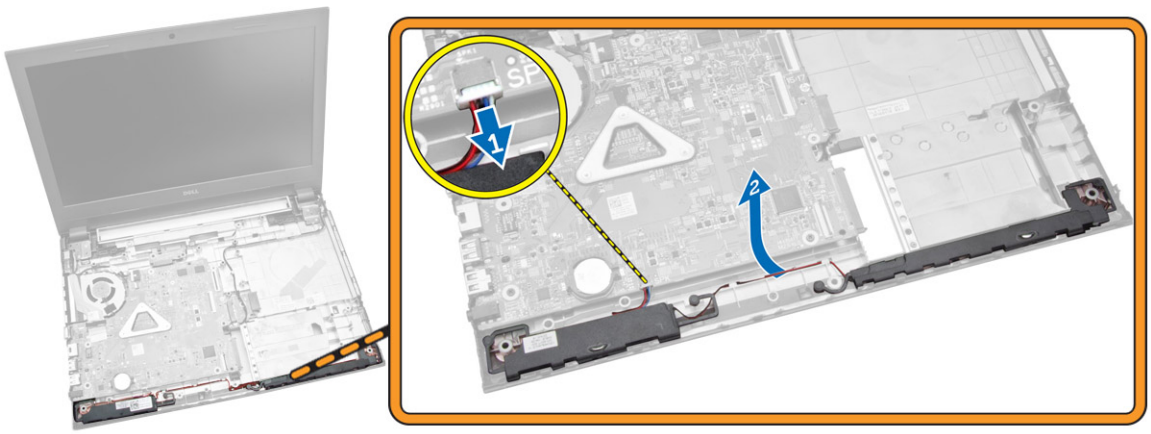


Installing the Input/Output (I/O) Board

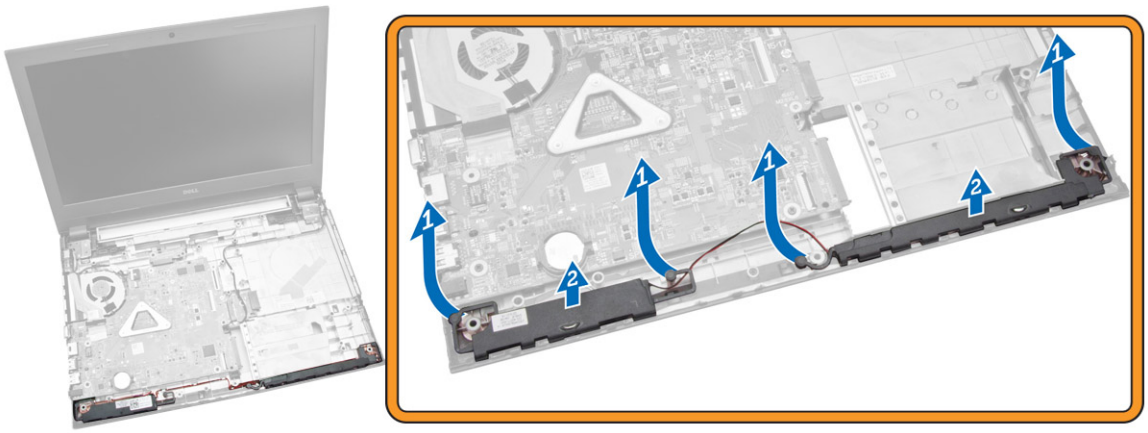
1. Insert the I/O board into the chassis.
2. Connect the I/O board cable to the system board.
3. Install:
   a. palmrest assembly
   b. keyboard
   c. memory module
   d. hard drive
   e. WLAN card
   f. access panel
   g. optical disk-drive
   h. battery
4. Follow the procedures in After Working Inside Your computer.

Removing the Speakers

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. Battery.
   b. optical disk-drive.
   c. access panel.
   d. hard drive.
   e. memory module.
   f. keyboard.
   g. palmrest assembly.
3. Perform the following steps as shown in the illustration:
   a. Disconnect the speaker cables from the system board [1].
   b. Release the speaker cables from the retention tabs [2].



4. Perform the following steps as shown in the illustration:
   a. Release the speaker assembly from the retention clips [1].
   b. Remove the speakers from the chassis [2].

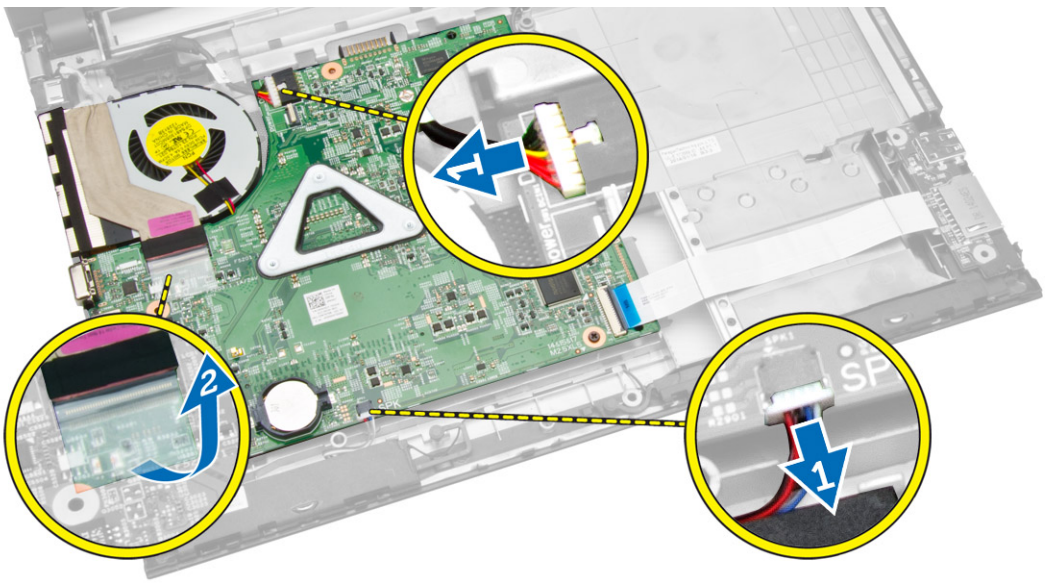


Installing the Speakers

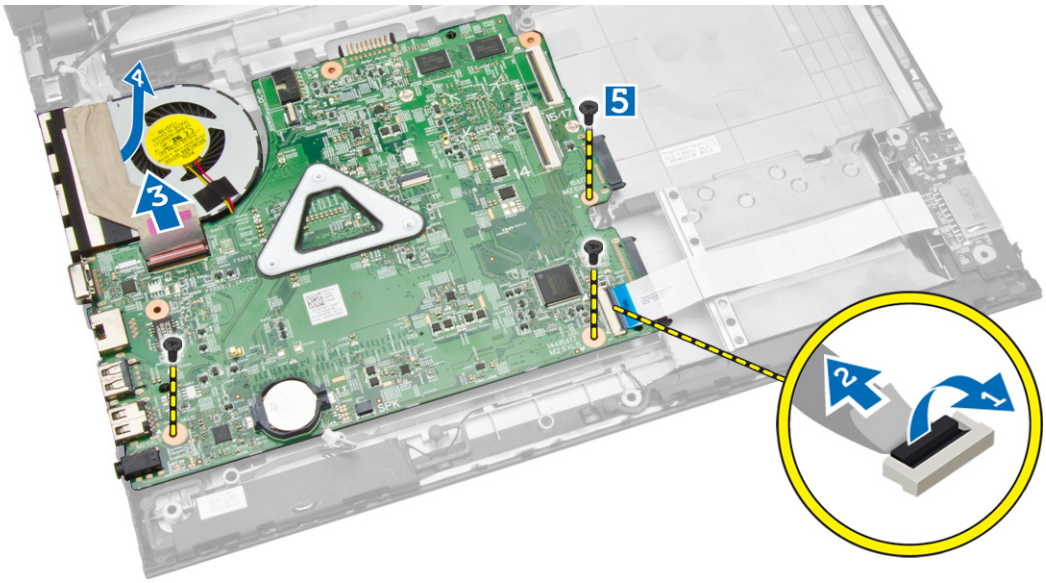
1. Insert the speakers into the chassis and press the retaining clips to lock in place.
2. Connect the speakers to the system board.
3. Install:
   a. palmrest assembly
   b. keyboard
   c. memory module
   d. hard drive
   e. WLAN card
   f. access panel
   g. optical disk-drive
   h. battery
4. Follow the procedures in After Working Inside Your computer.

Removing the System Board

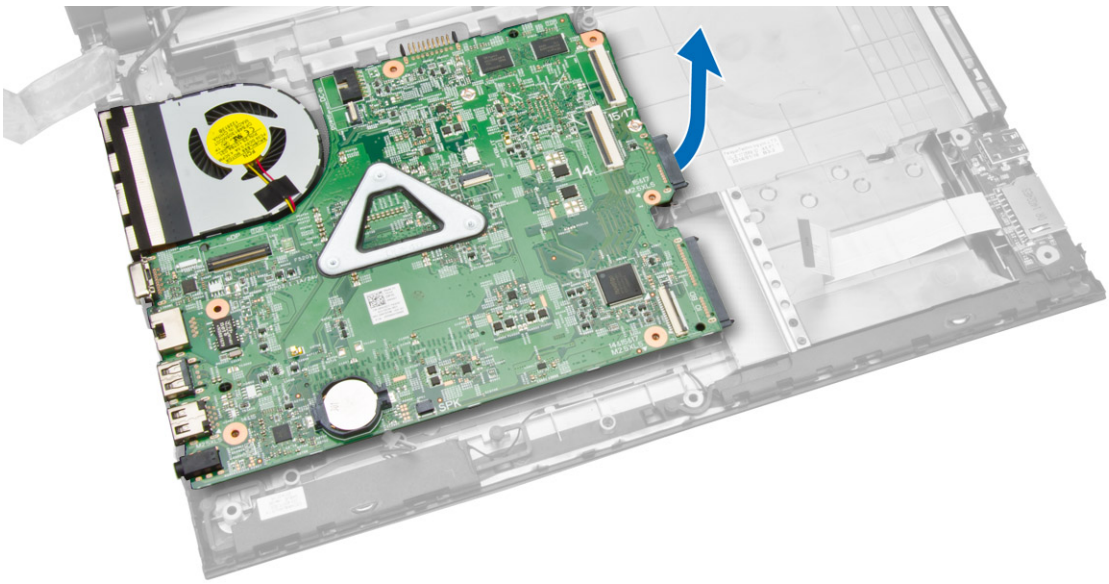
1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. Battery.
   b. optical disk-drive.
   c. access panel.
   d. WLAN card.
   e. hard drive.
   f. memory module.
   g. keyboard.
   h. palmrest assembly.
3. Perform the following steps as shown in the illustration:
   a. Disconnect speaker and power cable [1].
   b. Disconnect display (eDP) cables [2].



4. Perform the following steps as shown in the illustration
   a. Lift the locking tab [1].
   b. Disconnect I/O cable [2].
   c. Disconnect and lift the eDP cable away from the system board [3,4].
   d. Remove the screws that secure the system board to the chassis [5].



5. Lift and remove the system board from the chassis.



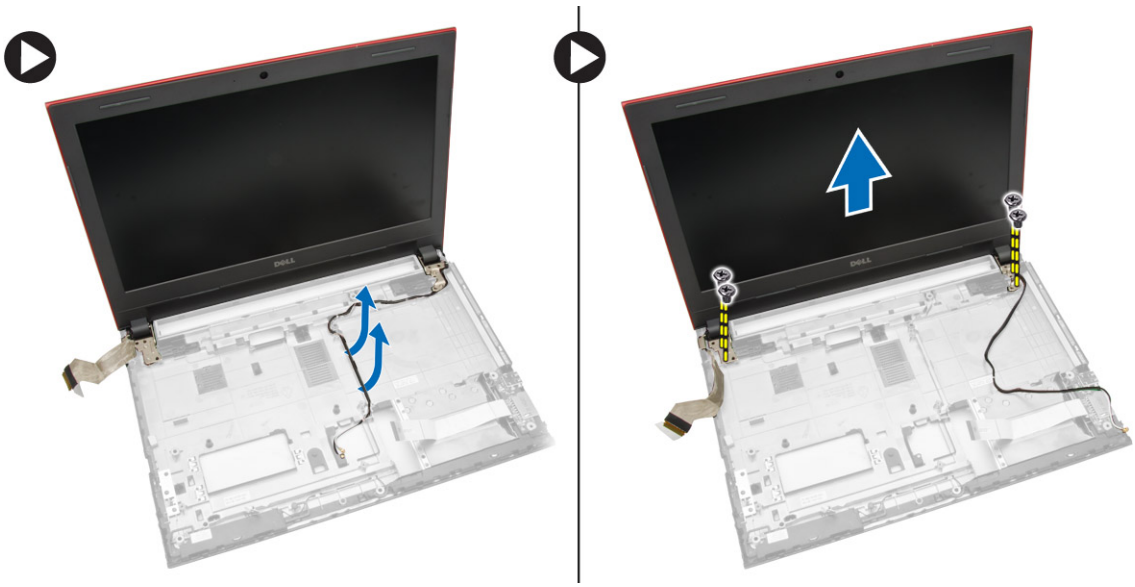
Installing the System Board

1. Insert the system board into the chassis.
2. Connect the I/O board connector to the system board.
3. Connect the eDP cable to the system board.

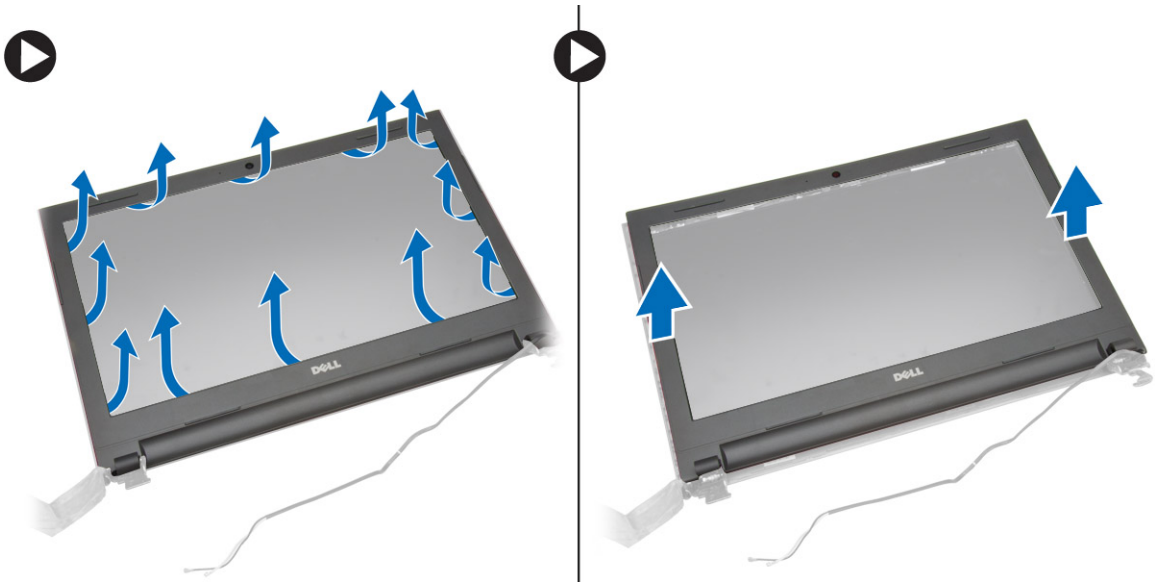
4. Connect the speakers to the system board.
5. Connect the power connector to the system board.
6. Tighten the screws to secure the system board to the computer.
7. Install:
   a. palmrest assembly
   b. keyboard
   c. memory module
   d. hard drive
   e. WLAN card
   f. access panel
   g. optical disk-drive
   h. battery
8. Follow the procedures in After Working Inside Your computer.

Removing the Display Assembly

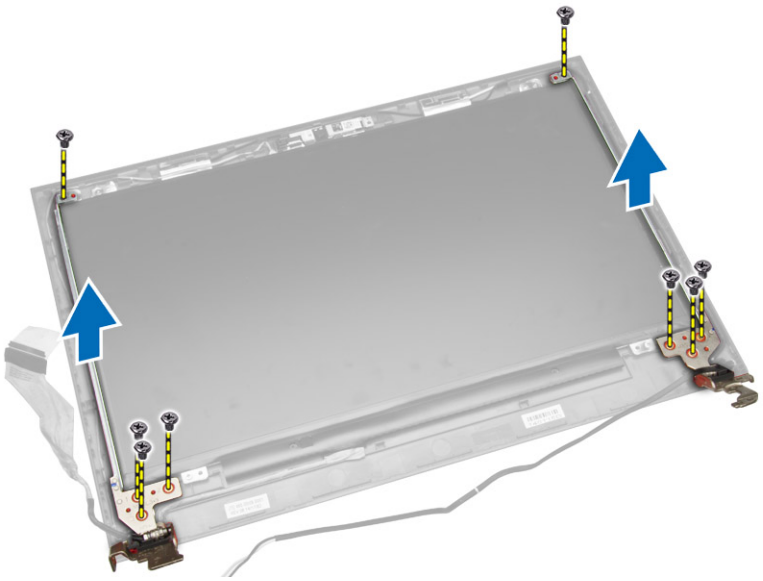
1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. Battery
   b. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. palmrest assembly
   h. system board
3. Unroute the WLAN cable and remove the screws that secure the display panel to the chassis.



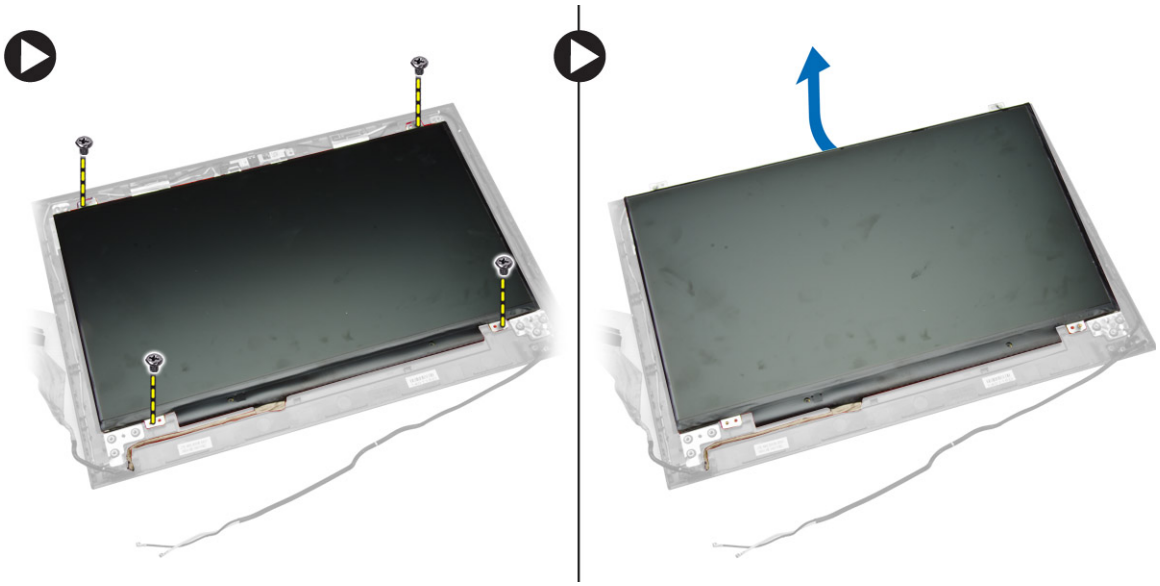
4. Place the display panel on a stable surface and lift the bezel from the computer.



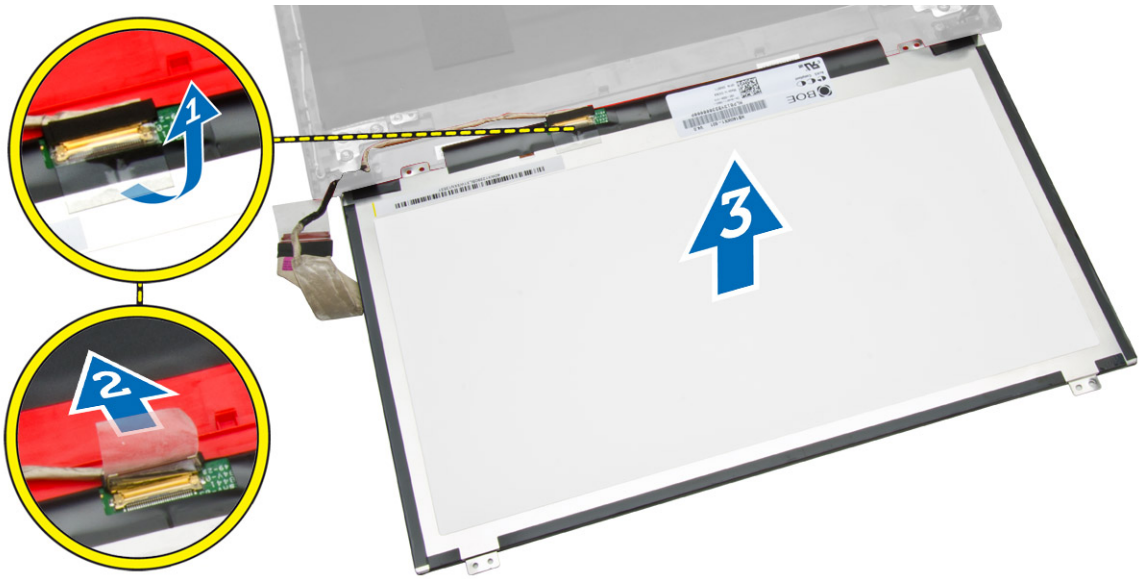
5. Remove the screws that secure the display hinges to the display assembly. Then, lift and remove the display hinges away from the display assembly.



6. Remove the screws securing the display panel to the display assembly. Then, flip the display panel to access the cables underneath.



7. Perform the following steps as shown in the illustration:
   a. Lift the eDP cable from the computer [1].
   b. Disconnect the eDP cable.
   c. Remove the display panel from the computer [3].



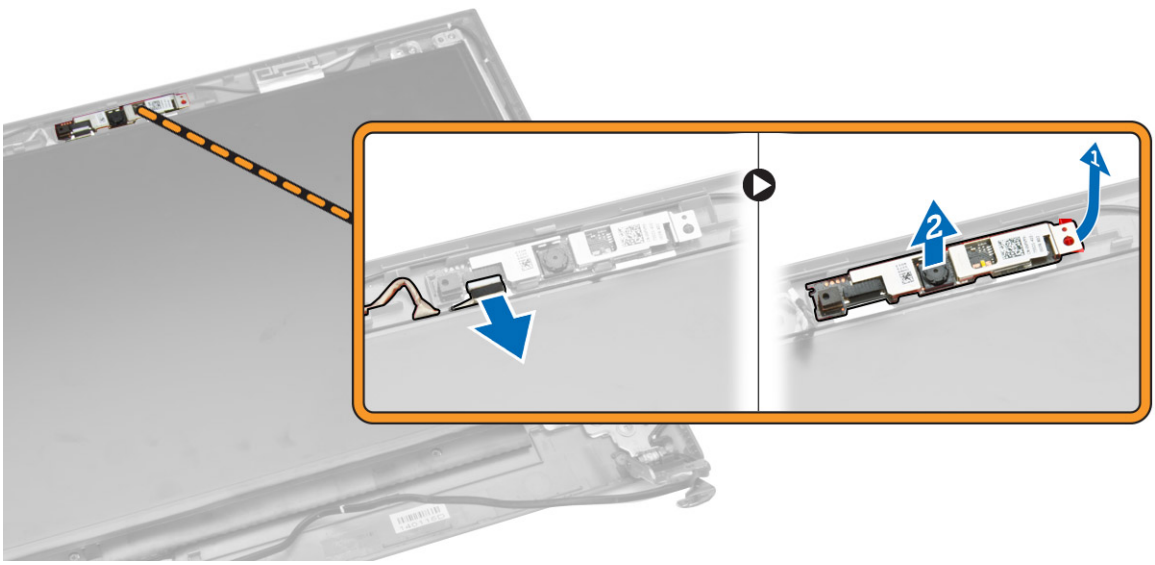
Installing the Display Assembly

1. Connect the eDP cable to the display panel.
2. Tighten the screws to secure the display panel to the display assembly.
3. Tighten the screws to secure the display hinges to the display assembly.
4. Align and press in the display bezel to the display assembly.
5. Guide the WLAN cables through their tabs and then tighten the display hinge screws to secure the display assembly.

6. Install:
   a. system board
   b. palmrest assembly
   c. keyboard
   d. memory module
   e. hard drive
   f. access panel
   g. optical disk-drive
   h. battery
7. Follow the procedures in After Working Inside Your computer.

Removing the Camera

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. Battery
   b. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. palmrest assembly
   h. system board
   i. display assembly
3. Perform the following steps as shown in the illustration:
   a. Disconnect the camera cable from the camera.
   b. Release the retention tab from the display assembly [1].
   c. Remove the camera from the display assembly [2].

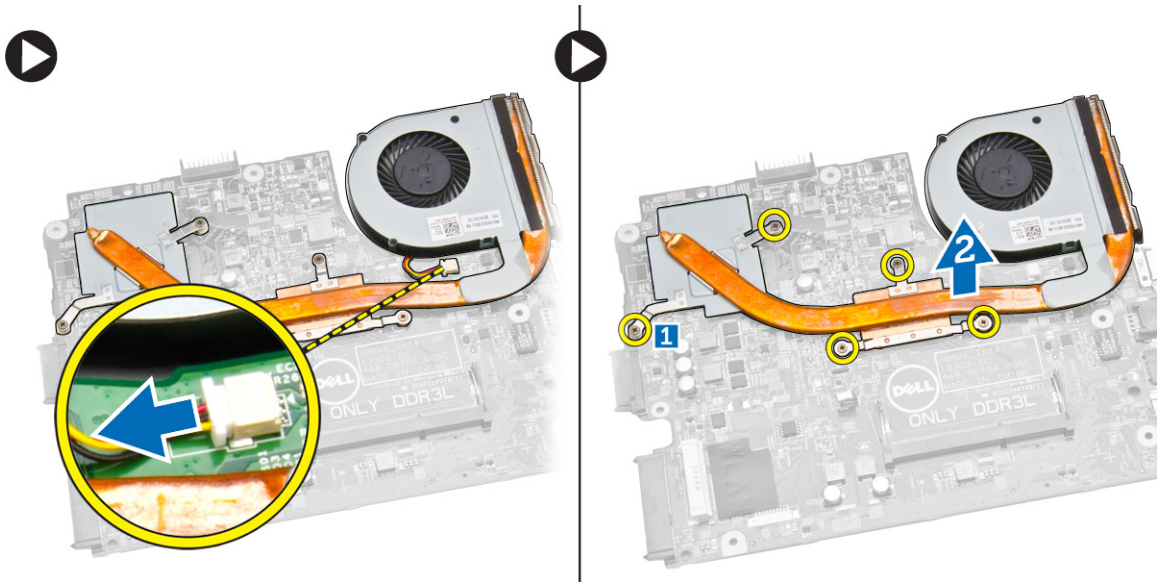


Installing the Camera

1. Insert the camera into the display assembly.
2. Connect the camera cable.
3. Install:
   a. display assembly
   b. palmrest assembly
   c. keyboard
   d. memory module
   e. hard drive
   f. WLAN card
   g. access panel
   h. optical disk-drive
   i. battery
4. Follow the procedures in After Working Inside Your computer.

Removing the Heatsink

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. Battery
   b. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. palmrest assembly
   h. system board
3. Perform the following steps as shown in the illustration:
   a. Disconnect the system fan's cable from the system board.
   b. Remove the screws that secure the heatsink to the system board [1]
   c. Lift the heatsink from the system board [3].



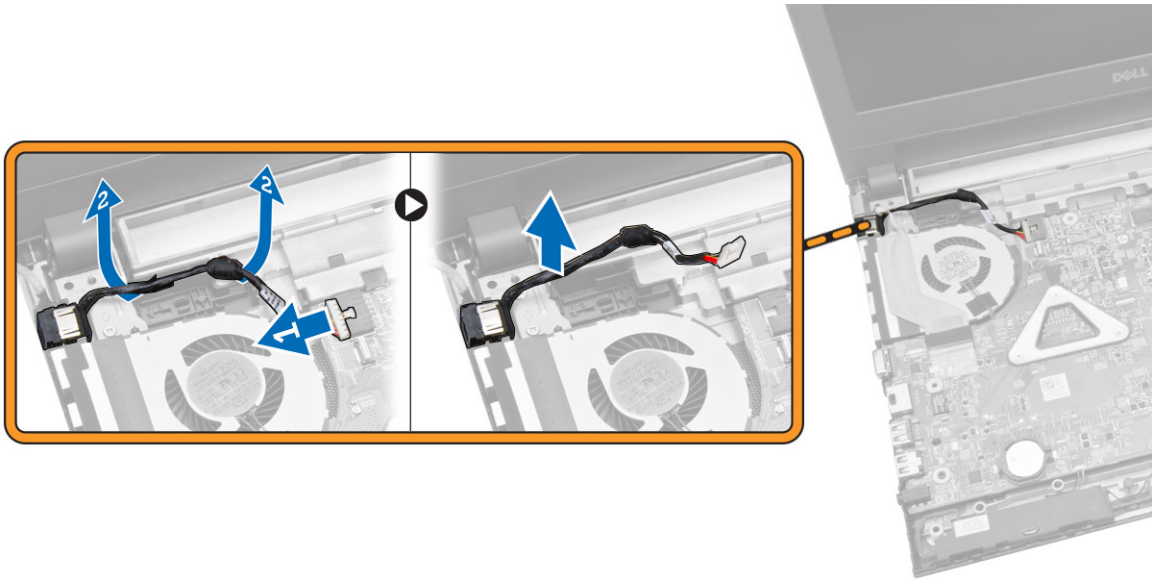
Installing the Heatsink Assembly

1. Insert the heatsink and tighten the screws to secure it to the system board.
2. Connect the system fan's cable to the system board.
3. Install:
   a. system board
   b. palmrest assembly
   c. keyboard
   d. memory module
   e. hard drive
   f. WLAN card
   g. access panel
   h. optical disk-drive
   i. battery
4. Follow the procedures in After Working Inside Your computer.

Removing the Power Connector

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a. Battery
   b. optical disk-drive
   c. access panel
   d. hard drive
   e. memory module
   f. keyboard
   g. palmrest assembly
3. Perform the following steps as shown in the illustration:
   a. Disconnect the power connector from the system board [1].

b. Unroute the cable from the retention clips [2].
c. Lift the power connector from the computer [3].



Installing the Power Connector

1. Insert the power connector into its slot on the chassis and guide the cable into the retention tabs.
2. Connect the power connector cable to the system board.
3. Install:
   a. palmrest assembly
   b. keyboard
   c. memory module
   d. hard drive
   e. WLAN card
   f. access panel
   g. optical disk-drive
   h. battery
4. Follow the procedures in After Working Inside Your computer.

3

System Setup

System Setup enables you to manage your computer hardware and specify BIOS-level options. From the System Setup, you can:

- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

Boot Sequence

Boot Sequence allows you to bypass the System Setup-defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing <F2> key
- Bring up the one-time boot menu by pressing <F12> key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot-menu options are:

- Removable Drive (if available)
- STXXXX Drive

  NOTE: XXX denotes the SATA drive number.
- Optical Drive
- Diagnostics

  NOTE: Choosing Diagnostics, will display the **ePSA diagnostics** screen.

The boot sequence screen also displays the option to access the System Setup screen.

Navigation Keys

The following table displays the system setup navigation keys.

NOTE: For most of the system setup options, changes that you make are recorded but do not take effect until you re-start the system.

Table 1. Navigation Keys

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
<Enter>	Allows you to select a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
<Tab>	Moves to the next focus area. NOTE: For the standard graphics browser only.
<Esc>	Moves to the previous page till you view the main screen. Pressing <Esc> in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.
<F1>	Displays the System Setup help file.

System Setup Options

NOTE: The system setup options may vary depending on the computer model.

The Main tab lists out the primary hardware features of the computer. The table below defines the function of each option.

Table 2. Main Options

Option	Description
System Time	Allows you to reset the time on the computer's internal clock.
System Date	Allows you to reset the date on the computer's internal calendar.
BIOS Version	Displays the BIOS revision.
Product Name	Displays the product name and the model number.
Service Tag	Displays the service tag of your computer.
Asset Tag	Displays the asset tag of your computer (if available).
CPU Type	Displays the type of processor.

Option		Description
CPU Speed		Displays the speed of the processor.
CPU ID		Displays the processor ID.
CPU Cache		
	L1 Cache	Displays the processor L1 cache size.
	L2 Cache	Displays the processor L2 cache size.
	L3 Cache	Displays the processor L3 cache size.
Fixed HDD		Displays the model number and capacity of the hard drive.
SATA ODD		Displays the model number and capacity of the optical drive.
AC Adapter Type		Displays the type of the AC adapter.
System Memory		Displays the system memory installed on the computer.
Extended Memory		Displays the extended memory on the computer.
Memory Speed		Displays the memory speed.

The Advanced tab allows you to set various functions that affect the performance of the computer. The table below defines the function of each option and its default value.

Table 3. Advanced Options

Option	Description	
Intel(R) SpeedStep(TM)	Enable or disable the Intel(R) SpeedStep(TM) feature.	Default: Enabled
Virtualization	Enable or disable the Intel Virtualization feature.	Default: Enabled

Option		Description	
Integrated NIC		Enable or disable the power supply to the on–board network card.	Default: Enabled
USB Emulation		Enable or disable the USB emulation feature.	Default: Enabled
USB Wake Support		Allows USB devices to wake up the computer from standby. This feature is enabled only when the AC adapter is connected.	Default: Disabled
SATA Operation		Supports AHCI only.	Default: AHCI
Adapter Warnings		Enables or disables adapter warnings.	Default: Enabled
Function Key Behavior		Specifies the behavior of the function key <Fn> .	Default: Multimedia key
Battery Health		Specifies the health of the battery.	
Miscellaneous Devices		These fields let you enable or disable various on-board devices.	
	External USB Ports	Enables or disables external USB ports.	Default: Enabled
	Microphone	Enables or disables microphone.	Default: Enabled
	Camera	Enables or disables camera.	Default: Enabled
	Internal Bluetooth	Enables or disables internal Bluetooth.	Default: Enabled
	Internal WLAN	Enables or disables WLAN.	Default: Enabled
	Media Card Reader	Enables or disables media card reader.	Default: Enabled
	Optical Drive	Enables or disables optical drive.	Default: Enabled
	Boot Disable	Enables or disables boot.	Default: Disabled
	USB debug	Enables or disables USB debug.	Default: Disabled

The Security tab displays the security status and allows you to manage the security features of the computer.

Table 4. Security Options

Option	Description
Unlock Setup Status	
Admin Password	This field displays if an admin password is set for this computer or not (Default: Not Set)
System Password	This field displays if a system password is set for this computer or not (Default: Not Set)
HDD Password State	This field displays if an HDD password is set for this computer or not (Default: Not Set)
Password Change	Allows you to add/remove permission for changing passwords.
Password Bypass	Allows you to bypass the system password and the internal HDD password prompts during a system restart/resume from hibernate state. (Default: Disabled)
Computrace	Enable or disable the Computrace feature on your computer.

The Boot tab allows you to change the boot sequence.

Table 5. Boot Options

Option		Description
Fast Boot		Enable or disable fast boot of system. (Default: Enabled)
Boot List Option		(Default: UEFI)
File Browser Add Boot Option		
File Browser Del Boot Option		
Secure Boot		Enable or disable secure boot. (Default: Enabled)
Load Legacy Option ROM		Allows you to load legacy option. (Default: Disabled)
Boot Option Priorities		
	Boot Option #1	Default: Windows Boot Manager
	Boot Option #2	Default: Onboard NIC (IPV4)
	Boot Option #3	Default: Onboard NIC (IPV6)

Exit — This section allows you to save, discard, and load default settings before exiting from System Setup.

Updating the BIOS

It is recommended to update your BIOS (system setup), on replacing the system board or if an update is available. For laptops, ensure that your computer battery is fully charged and connected to a power outlet

1. Re-start the computer.
2. Go to **dell.com/support**.
3. Enter the **Service Tag** or **Express Service Code** and click **Submit**.

   NOTE: To locate the Service Tag, click **Where is my Service Tag?**

   NOTE: If you cannot find your Service Tag, click **Detect My Product**. Proceed with the instructions on screen.
4. If you are unable to locate or find the Service Tag, click the Product Category of your computer.
5. Choose the **Product Type** from the list.
6. Select your computer model and the **Product Support** page of your computer appears.
7. Click **Get drivers** and click **View All Drivers**.

   The Drivers and Downloads page opens.
8. On the Drivers and Downloads screen, under the **Operating System** drop-down list, select **BIOS**.
9. Identify the latest BIOS file and click **Download File**.

   You can also analyze which drivers need an update. To do this for your product, click **Analyze System for Updates** and follow the instructions on the screen.
10. Select your preferred download method in the **Please select your download method below** window, click **Download File**.

    The **File Download** window appears.
11. Click **Save** to save the file on your computer.
12. Click **Run** to install the updated BIOS settings on your computer.

    Follow the instructions on the screen.

System and Setup Password

You can create a system password and a setup password to secure your computer.

Password Type	Description
System password	Password that you must enter to log on to your system.
Setup password	Password that you must enter to access and make changes to the BIOS settings of your computer.

CAUTION: The password features provide a basic level of security for the data on your computer.

CAUTION: Anyone can access the data stored on your computer if it is not locked and left unattended.

NOTE: Your computer is shipped with the system and setup password feature disabled.

Assigning a System Password and Setup Password

You can assign a new **System Password** and/or **Setup Password** or change an existing **System Password** and/or **Setup Password** only when **Password Status** is **Unlocked**. If the Password Status is **Locked**, you cannot change the System Password.

NOTE: If the password jumper is disabled, the existing System Password and Setup Password are deleted and you need not provide the system password to log on to the computer.

To enter a system setup, press <F2> immediately after a power-on or re-boot.

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press <Enter>.
   The **System Security** screen appears.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password** , enter your system password, and press <Enter> or <Tab>.
   Use the following guidelines to assign the system password:
   - A password can have up to 32 characters.
   - The password can contain the numbers 0 through 9.
   - Only lower case letters are valid, upper case letters are not allowed.
   - Only the following special characters are allowed: space, (”), (+), (,), (-), (.), (/), (;), ([), (\), (]), (`).

   Re-enter the system password when prompted.
4. Type the system password that you entered earlier and click **OK**.
5. Select **Setup Password**, type your system password and press <Enter> or <Tab>.
   A message prompts you to re-type the setup password.
6. Type the setup password that you entered earlier and click **OK**.
7. Press <Esc> and a message prompts you to save the changes.
8. Press <Y> to save the changes.
   The computer reboots.

Deleting or Changing an Existing System and/or Setup Password

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.
To enter the System Setup, press <F2> immediately after a power-on or reboot.

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press <Enter>.
   The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, alter or delete the existing system password and press <Enter> or <Tab>.
4. Select **Setup Password**, alter or delete the existing setup password and press <Enter> or <Tab>.

   NOTE: If you change the System and/or Setup password, re-enter the new password when promoted. If you delete the System and/or Setup password, confirm the deletion when promoted.
5. Press <Esc> and a message prompts you to save the changes.
6. Press <Y> to save the changes and exit from the System Setup.
   The computer reboots.

4

Diagnostics

Enhanced Pre-Boot System Assessment (ePSA) Diagnostics

The ePSA diagnostics (also known as system diagnostics) performs a complete check of your hardware. The ePSA is embedded with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully
- View error messages that inform you of problems encountered during testing

CAUTION: Use the system diagnostics to test only your computer. Using this program with other computers may cause invalid results or error messages.

NOTE: Some tests for specific devices require user interaction. Always ensure that you are present at the computer terminal when the diagnostic tests are performed.

1. Power-on the computer.
2. As the computer boots, press the <F12> key as the Dell logo appears.
3. On the boot menu screen, select the **Diagnostics** option.

   The **Enhanced Pre-boot System Assessment** window is displayed, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.
4. If you wish to run a diagnostic test on a specific device, press <Esc> and click **Yes** to stop the diagnostic test.
5. Select the device from the left pane and click **Run Tests**.
6. If there are any issues, error codes are displayed.

   Note the error code and contact Dell.

Device Status Lights

Icon	Description
	Turns on when you turn on the computer and blinks when the computer is in a power management mode.
	Turns on steadily or blinks to indicate battery charge status.

Power Status Lights

If the computer is connected to an electrical outlet, the battery light operates as follows:

Solid yellow light	Battery charge is low to critical.
Light off (AC adapter connected)	Battery is fully charged.
Light off (AC adapter disconnected)	Battery is medium to fully charged.
White light on	Battery in charge mode with AC adapter connected.

5

Specifications

Specifications

NOTE: Offerings may vary by region. For more information regarding the configuration of your computer, click Start **(Start icon)** → **Help and Support**, and then select the option to view information about your computer.

Table 6. System Information

Feature	Description
Chipset	integrated in processor
DRAM bus width	64 bits
Flash EPROM	8 MB

Table 7. Processor

Feature	Description
Types	• 5th Generation Intel Core i3 Processor (U-Processor Line) • 5th Generation Intel Core i5 Processor (U-Processor Line) • 5th Generation Intel Core i7 (U-Processor Line)
L1 cache	128 KB
L2 cache	512 KB
L3 cache	Up to 4 MB

Table 8. Memory

Feature	Description
Memory connector	one internally accessible DDR3L connector
Memory capacity	2 GB, 4 GB
Memory speed	1600 MHz
Minimum memory	2 GB
Maximum memory	4 GB

Table 9. Audio

Feature	Description
Type	2 channel high-definition audio
Controller	Realtek ALC3234
Stereo conversion	24-bit (analog-to-digital and digital-to-analog)
Interface	Intel HDA bus
Speakers	2 x 2 W
Volume controls	program menu and keyboard media-control keys

Table 10. Video

Feature	Description
Video type	eDP
Video Controller:	
UMA	Intel HD Graphics (shared memory)
Discrete	NVIDIA GeForce 820M (up to 2 GB DDR3)
Data bus:	64 bits
External display support	VGA

Table 11. Camera

Feature	Description
Camera Resolution	HD resolution
Video Resolution (maximum)	1280 x 720 (HD) at 30 fps (maximum)
Diagonal viewing angle	74°

Table 12. Communication

Feature	Description
Network adapter	10/100/1000 Mbps Ethernet LAN on Motherboard (LOM)
Wireless	• Wi-Fi 802.11 b/g/n • Bluetooth 4.0

Table 13. Ports and Connectors

Feature	Description
Audio	one headphone/microphone combo port (headset)
Video	VGA
Network adapter	one RJ-45 port
USB:	• one USB 3.0 port

Feature	Description
	• two USB 2.0 ports

NOTE: The powered USB 3.0 connector also supports Microsoft Kernel Debugging. The ports are identified in the documentation shipped with your computer.

Media card reader	one SD slot

Table 14. Display

Feature	
Type	15.6 inches HD WLED
Dimensions:	
Height	224.30 mm (8.83 inches)
Thickness	3.2 mm (0.13 inch)
Width	360.00 mm (14.17 inches)
Active area (X/Y)	344.20 mm x 193.50 mm (13.55 inches x 7.62 inches)
Maximum resolution	1366 x 768 pixels
Maximum Brightness	200 nits
Operating angle	0° (closed) to 135°
Refresh rate	60 Hz
Minimum Viewing angles:	
Horizontal	40° / 40°
Vertical	10° / 30°
Pixel pitch	0.252 mm x 0.252 mm

Table 15. Keyboard

Feature	Description
Number of keys:	US 101, Brazil 104, UK 102, and Japan 105

Table 16. Touchpad

Feature	Description
Active Area:	600 dpi
X-axis	102.40 mm (4.03 inches)
Y-axis	77.40 mm (3.05 inches)

Table 17. Battery

Feature	Description
Type	• 4-cell "smart" lithium ion (40 WHr)
Dimensions:	
Height	20.00 mm (0.79 inch)
Width	49.6 mm (1.95 inches)
Depth	272.40 mm (10.72 inches)
Weight	0.26 kg (0.57 lb)
Life span	300 discharge/charge cycle
Voltage	• 14.80 VDC (4 cells)
Temperature range:	
Operating	0 °C to 40 °C (32 °F to 104 °F)
Non-Operating	–40 °C to 70 °C (–40 °F to 158 °F)
Coin-cell battery	3 V CR2032 lithium ion

Table 18. AC Adapter

Feature	Description
Type	65 W
Input voltage	100 VAC to 240 VAC
Input current (maximum)	1.50 A/1.60 A/1.70 A/2.50 A
Input frequency	50 Hz-60 Hz
Output power	65 W
Output current	3.34 A/4.62 A
Rated output voltage	19.50 VDC
Temperature range:	
Operating	0 °C to 40 °C (32 °F to 104 °F)
Non-Operating	–40 °C to 70 °C (–40 °F to 158 °F)

Table 19. Physical

Feature	
Height	27.60 mm (1.09 inches)
Width	346.00 mm (13.62 inches)
Depth	246.00 mm (9.68 inches)
Weight (minimum)	2.2 kg (4.8 lb)

Table 20. Environmental

Feature	Description
Temperature:	
Operating	0 °C to 40 °C (32 °F to 104 °F)
Storage	–40 °C to 65 °C (–40 °F to 149 °F)
Relative humidity (maximum):	
Operating	10 % to 90 % (non-condensing)
Storage	0 % to 95 % (non-condensing)
Altitude (maximum):	
Operating	–15.2 m to 3048 m (–50 to 10,000 ft)
	0° to 35°C
Non-Operating	–15.2 m to 10,668 m (–50 ft to 35,000 ft)
Airborne contaminant level	G1 as defined by ISA-S71.04-1985

6

Contacting Dell

Contacting Dell

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Go to **dell.com/support**.
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.